**Abstract**

 In the recent years, nanosized spinel ferrites have attracted considerable attention for their interesting structural, magnetic and electrical properties. The physical and chemical properties of nanomaterials have been enhanced because of their surface-to-volume ratio. Magnesium ferrite is a most versatile ferrite, due to its high resistivity and low eddy currents. It is a partially inverse spinel and its degree of inversion is sensitive to the thermal history of the sample, microstructure and preparative parameters. Also copper ferrite has potential applications in nanoscience and technology. Hence an attempt is made to synthesize copper doped magnesium ferrite by coprecipitation method. Magnesium chloride [MgCl2. 6H2O], cupric chloride [CuCl2. 2H2O], anhydrous Ferric chloride [Fecl3] and sodium hydroxide are used as raw materials. Copper doped magnesium ferrite (Mg0. 8CuO. 2Fe2O4) sample sintered at 600○C are subjected to X-ray diffraction to calculate the average nano-crystalline size using Debye–Scherrer formula. The FT-IR spectra of the sample are recorded to ensure the presence of the metallic compounds. The morphological analysis of the sample is studied using Scanning Electron Microscope (SEM).